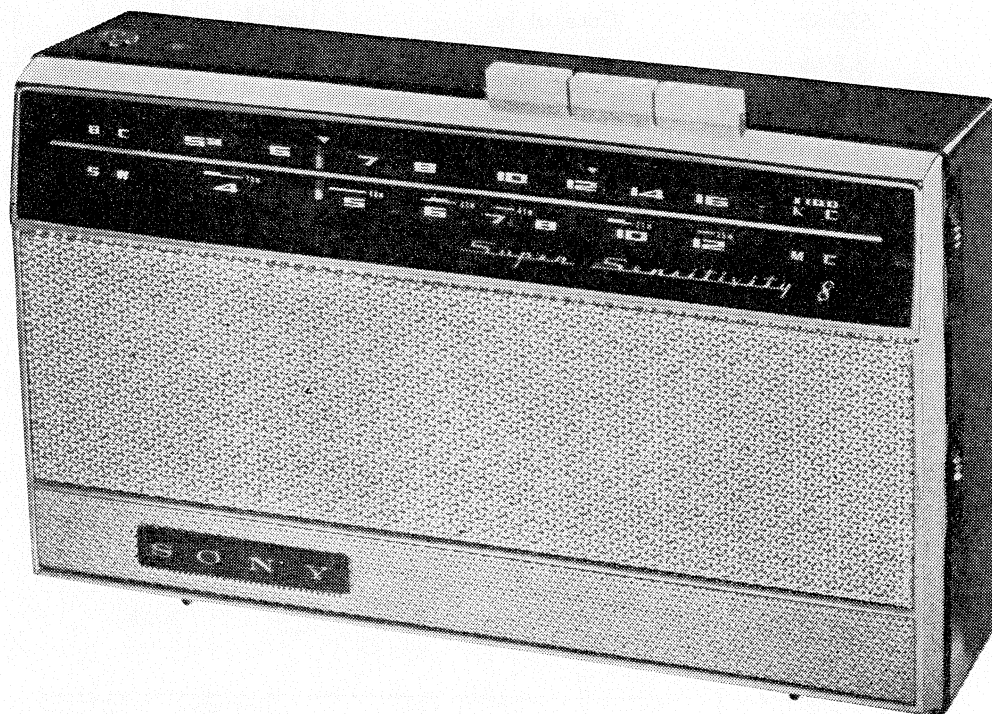


SONY

SERVICING GUIDE

TR-816 & TR-816Y



Specifications for TR-816 & TR-816Y

Circuit :	8 Transistor Superheterodyne with RF Stage
Frequency Coverage :	MW 535~1,605 Kc SW 3.9 ~12.0 Mc (SW 6~18 Mc for TR-816Y)
Intermediate Frequency :	455 Kc
Antenna System :	MW Built-in Ferrite Bar Antenna Auxiliary Antenna Jack SW Built-in Ferrite Bar Antenna Telescopic Antenna (detachable) Auxiliary Antenna Jack
Sensitivity :	MW 50 μ V/M with Built-in Ferrite Bar Antenna
(at 50 mW output)	SW 55 μ V/M with Built-in Ferrite Bar Antenna SW 9 μ V/M with Telescopic Antenna MW 4.5 μ V/M with Auxiliary Antenna Jack SW 6.5 μ V/M with Auxiliary Antenna Jack
Selectivity :	26 db at 10 Kc off from 1,400 Kc
Output Power :	180 mW (undistorted) 1.2 Volt Across 8 Ω
Speaker :	2-3/4" PM dynamic, 8 Ω
Battery :	Three size "C" flashlight batteries (4.5 Volts)
Current Drain :	8.6 mA at zero signal, 97 mA at 210 mW output
Dimensions :	7" $\times$ 4" $\times$ 2" (178 $\times$ 102 $\times$ 49 mm)
Weight :	2 pounds (900 gr.)

To Remove the Circuit Board :

- 1) Unscrew two Phillips screws (plus screws) to remove the rear cover.
- 2) Remove three screws which can be seen through the three holes on the circuit board.
- 3) Take out the batteries.
- 4) Remove two screws to remove the battery container.
- 5) Remove one chassis fix screw on the lower left corner.
- 6) Remove one screw between the oscillator coil and IFT on the circuit board.

Ajustment and Alignment :

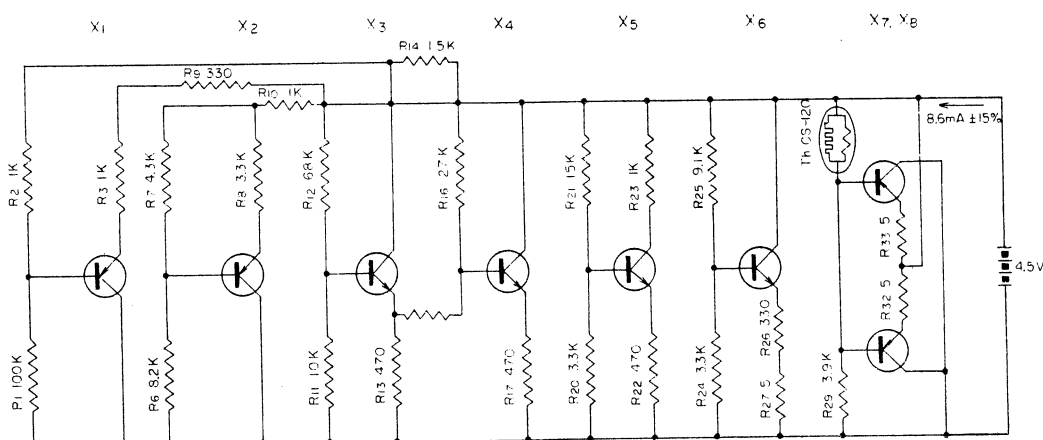
a) Frequency Coverage

	Lower Limit	Adjust	Upper Limit	Adjust
MW	520 Kc	Core of L_{31}	1,680 Kc	C_{2-5}
SW	3.8 Mc	Core of L_{32}	12.6 Mc	C_{2-6}
	(5.8 Mc for TR-816Y)		(18.6 Mc for TR-816Y)	

b) Tracking Alignment (Repeat several times)

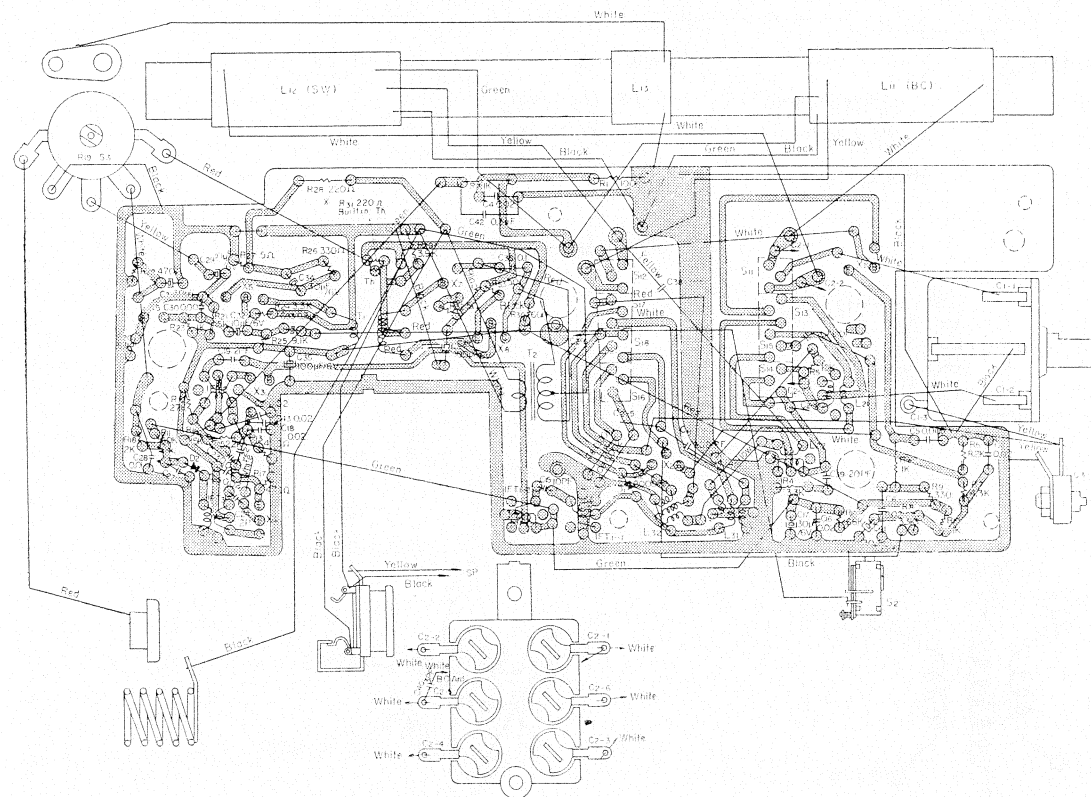
	Checking Point	Adjust
MW	620 Kc	Core of L_{21} , Position of L_{11}
	1,400 Kc	C_{2-3} , C_{2-1}
SW	3.8 Mc (5.8 Mc for TR-816Y)	Core of L_{22} , Position of L_{12}
	12.6 Mc (18.6 Mc for TR-816Y)	C_{2-4} , C_{2-2}

Voltage and Current Distribution Chart at Zero Signal

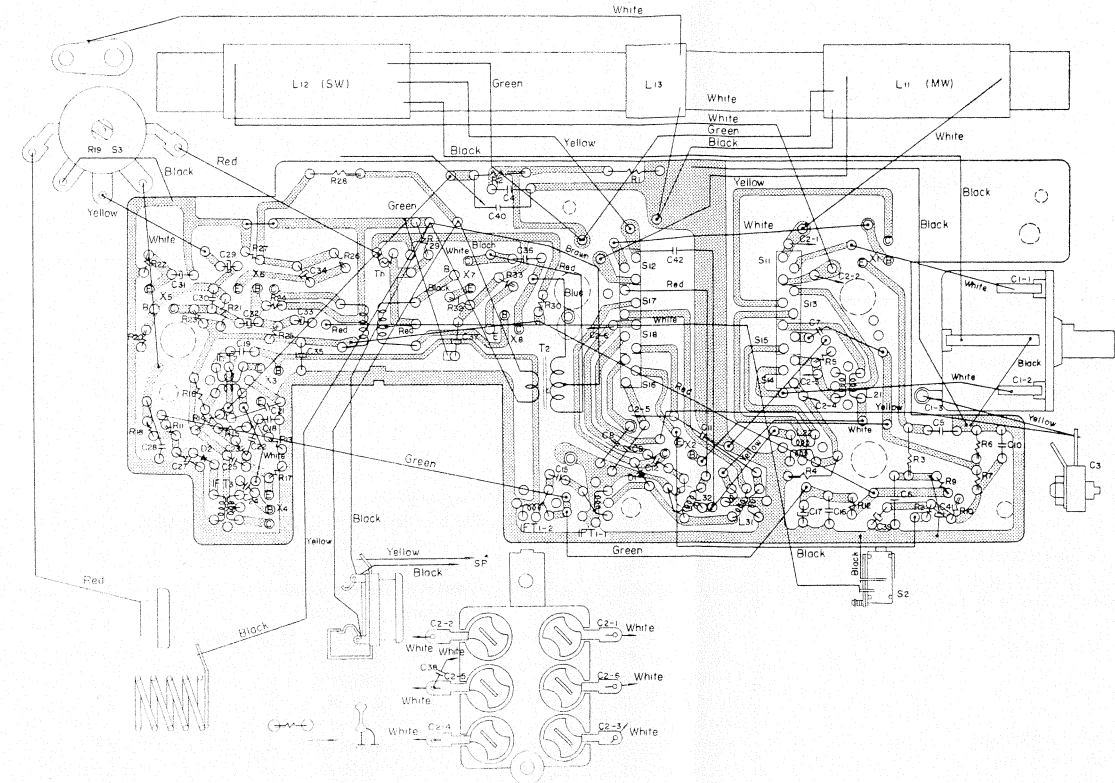


	Collector Current	Emitter Voltage
X_1	190 ~ 270 μA	0.19 ~ 0.27 V
X_2	310 ~ 390 μA	1.0 ~ 1.30 V
X_3	300 ~ 380 μA	0.22 ~ 0.26 V
X_4	380 ~ 520 μA	0.19 ~ 0.24 V
X_5	800 ~ 940 μA	0.38 ~ 0.44 V
X_6	0.9 ~ 3.9 mA	0.75 ~ 0.86 V
$X_{7, 8}$	1.0 ~ 1.8 mA	

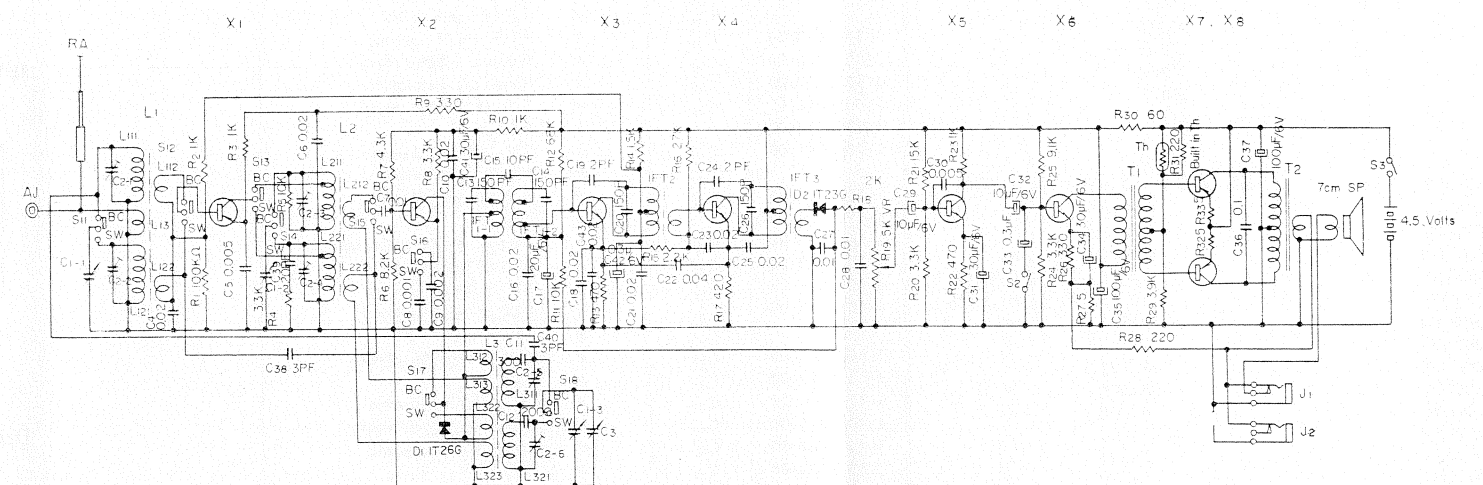
Mounting Diagram for TR-816 (Printed Side)



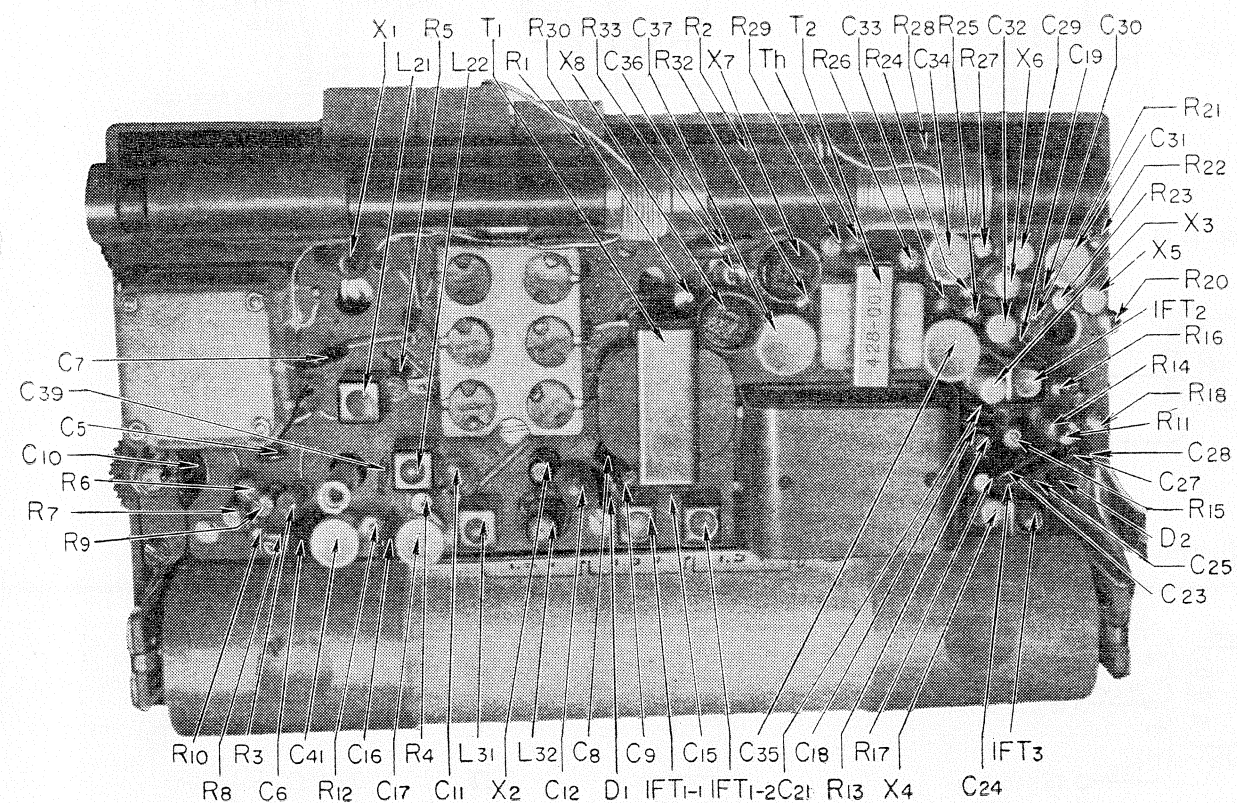
Mounting Diagram for TR-816Y (Printed Side)



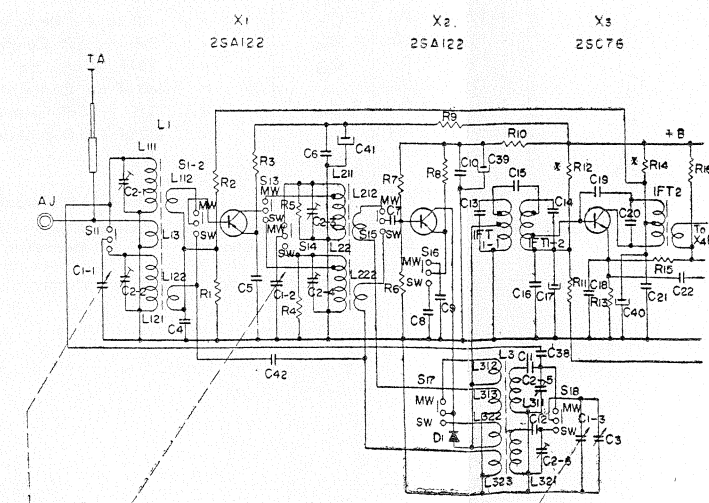
Schematic Diagram for TR-816



Mounting Diagram for TR-816 (Mounted Side)



Schematic Diagram for TR-816Y

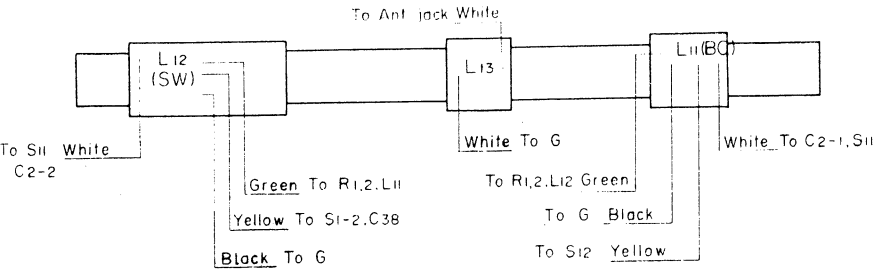


Electronic Parts List for TR-816 & TR-816Y

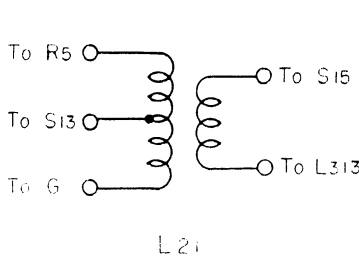
Part No.	Symbol	Description	Part No.	Symbol	Description
1-501-017-00	RA	Telescopic Antenna	1-203-802-00	R ₂₅	Carbon Resistor 9.1 KΩ RD 3/8 RL ±5%
1-401-103-00	L ₁	Ferrite Bar Antenna	1-203-360-00	R ₂₆	" 330 Ω "
(1-401-126-00)			1-203-351-00	R ₂₇	" 5.1 Ω "
1-425-014-00	L ₂₁	MW, RF Transformer	1-203-018-00	R ₂₈	" 220 Ω RD 1/4 L ±5%
1-425-015-00	L ₂₂	SW, "	1-203-374-00	R ₂₉	" 3.9 KΩ RD 1/8 RL ±5%
(1-425-019-00)			1-203-355-00	R ₃₀	" 62 Ω "
1-405-083-00	L ₃₁	MW, Oscillator Coil			—deleted—
1-405-084-00	L ₃₂	SW, "	1-203-351-00	R ₃₁	Carbon Resistor 5.1 Ω RD 1/8 RL ±5%
(1-405-202-00)			1-203-351-00	R ₃₂	" 5.1 Ω "
1-513-115-00	S ₁	Band Setting Switch	1-151-027-00	C ₁₋₁	Tuning Capacitor, 3 gang
1-514-047-00	S ₂	Tone Control Switch	1-141-123-00	C ₂₋₁	Trimmer Capacitor, 6 unit
1-221-240-00	S ₃	Power Switch (with R ₁₉)	1-151-107-01	C ₃	Fine Tuning Capacitor
1-507-036-02	AJ	Antenna Jack	1-105-013-00	C ₄	Capacitor 0.02 μf ±30% Mylar
1-403-055-00	IFT ₁₋₁	Double Tuned IFT	1-105-011-00	C ₅	" 0.005 μf "
1-403-056-00	IFT ₁₋₂	"	1-105-013-00	C ₆	" 0.02 μf "
1-403-026-00	IFT ₂	IF Transformer	(1-105-078-00)	C ₇	" 0.04 μf "
1-403-027-00	IFT ₃	"	1-105-012-00	C ₈	" 0.01 μf "
1-423-001-00	T ₁	Driving Transformer	1-105-009-00	C ₉	" 0.001 μf "
1-427-052-20	T ₂	Output Transformer	1-105-010-00	C ₁₀	" 0.002 μf "
1-507-030-00	J _{1, 2}	Twin Earphone Jack	1-105-013-00	C ₁₁	" 0.02 μf "
1-502-047-00	SP	Speaker VC 8 Ω	1-103-062-00	C ₁₂	" 300 PF ±10% Styrol
	X ₁	Transistor 2SA122	1-103-037-00	C ₁₃	" 2000 pF "
	X ₂	" 2SA122	(1-103-016-00)	C ₁₄	" (3000 PF ± 5%)
	X ₃	" 2SC76		C ₁₅	" 150 PF built in IFT
	X ₄	" 2SC76	1-101-013-00	C ₁₆	" 10 PF ±1 PF Ceramic
	X ₅	" 2SD65	1-105-013-00	C ₁₇	" 0.02 μf ±30% Mylar
	X ₆	" 2SD65	1-121-102-00	C ₁₈	" 30 μf 6 V Electrolytic
	X ₇	" 2SB52	1-105-042-00	C ₁₉	" 0.04 μf ±30% Mylar
	X ₈	" 2SB52	(1-105-013-00)	C ₂₀	" (0.02 μf ")
	D ₁	Diode 1T26G	1-101-046-00	C ₂₁	" 2 PF ±0.5 PF Ceramic
	D ₂	" 1T23G		C ₂₂	" 150 PF built in IFT
	Th	Thermistor CS120	1-105-013-00	C ₂₃	" 0.02 μf ±30% Mylar
1-203-100-00	R ₁	Carbon Resistor 100 KΩ RD 1/4 L ±5%	(1-105-078-00)	C ₂₄	" (0.04 μf ")
(1-203-123-00)		" (120 KΩ ")	1-101-023-00	C ₂₅	" 0.04 μf ±100% Ceramic
1-203-035-00	R ₂	" 1.0 KΩ " "	1-105-013-00	C ₂₆	" 0.02 μf ±30% Mylar
(1-203-031-00)		" (7.5 KΩ ")	1-101-046-00	C ₂₇	" 2 PF ±0.5 PF Ceramic
1-203-367-00	R ₃	" 1.0 KΩ RD 1/8 L ±5%	1-105-013-00	C ₂₈	" 0.02 μf ±30% Mylar
1-203-373-00	R ₄	" 3.3 KΩ RD 1/8 RL ±5%		C ₂₉	" 150 PF built in IFT
(1-203-385-00)		" (15 KΩ ")	1-105-012-00	C ₃₀	" 0.01 μf ±30% Mylar
1-203-383-00	R ₅	" 10 KΩ " "	1-105-012-00	C ₃₁	" 0.01 μf "
(1-203-390-00)		" (33 KΩ ")	1-121-104-00	C ₃₂	" 10 μf 6 V Electrolytic
1-203-408-00	R ₆	" 8.2 KΩ " "	1-105-011-00	C ₃₃	" 0.005 μf ±30% Mylar
1-203-306-00	R ₇	" 4.3 KΩ " "	1-121-102-00	C ₃₄	" 30 μf 6 V Electrolytic
1-203-373-00	R ₈	" 3.3 KΩ " "	1-121-104-00	C ₃₅	" 10 μf "
1-203-360-00	R ₉	" 330 Ω " "	1-127-901-00	C ₃₆	" 0.3 μf 6 V ±100% Alox
1-203-367-00	R ₁₀	" 1.0 KΩ " "	1-121-102-00	C ₃₇	" 30 μf 6 V Electrolytic
1-203-383-00	R ₁₁	" 10 KΩ " "	1-121-115-00	C ₃₈	" 100 μf "
1-203-409-00	R _{12*}	" 68 KΩ " "	1-101-109-00	C ₃₉	" 0.1 μf Ceramic
1-203-361-00	R ₁₃	" 470 Ω " "	1-121-115-00	C ₄₀	" 100 μf 6 V Electrolytic
1-203-368-00	R _{14*}	" 1.2 KΩ " "	1-101-047-00	C ₄₁	" 3 PF ±0.5 PF Ceramic
1-203-370-00	R ₁₅	" 2.2 KΩ " "	1-103-022-00	C ₄₂	" 20 PF ±10% Styrol
1-203-388-00	R ₁₆	" 27 KΩ " "	(1-121-102-00)	C ₄₃	" (30 μf 6 V Electrolytic)
1-203-361-00	R ₁₇	" 470 Ω " "	1-101-047-00	C ₄₄	" 3 PF ±0.5 PF Ceramic
1-203-323-00	R ₁₈	" 20 KΩ " "	(1-121-102-00)		" (30 μf 6 V Electrolytic)
(1-203-373-00)		" (3.3 KΩ ")	1-121-102-00		" 30 μf "
1-221-240-00	R ₁₉	Volume Control			—deleted—
1-203-373-00	R ₂₀	Carbon Resistor 3.3 KΩ RD 1/8 RL ±5%	(1-101-047-00)		" (3 PF ±0.5 PF Ceramic)
1-203-385-00	R ₂₁	" 15 KΩ " "			"
1-203-361-00	R ₂₂	" 470 Ω " "	1-119-051-00		Capacitor 1 μf 6 V Electrolytic
1-203-367-00	R ₂₃	" 1.0 KΩ " "			
1-203-373-00	R ₂₄	" 3.3 KΩ " "			

Parts for TR-816Y are shown in parentheses.

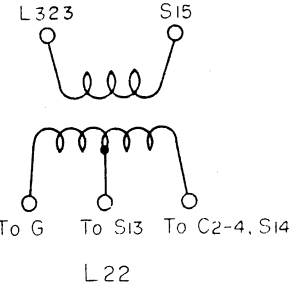
Ferrite Bar Antenna



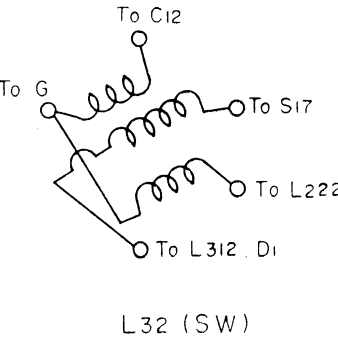
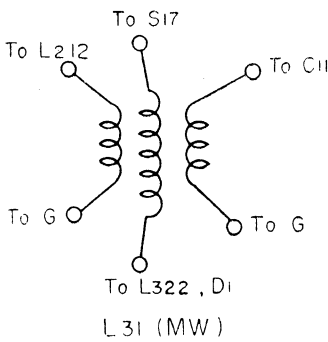
MW RF Transformer



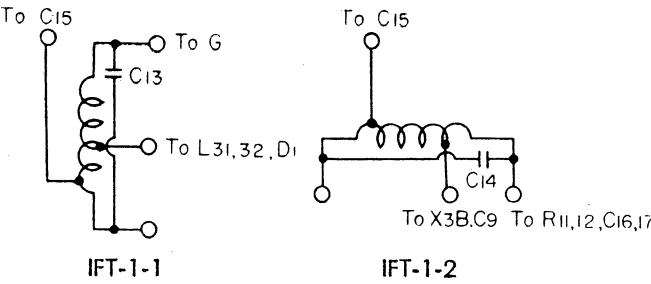
SW RF Transformer



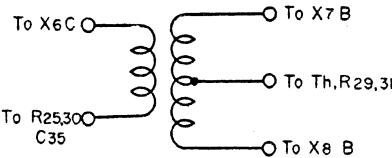
Oscillator Coil



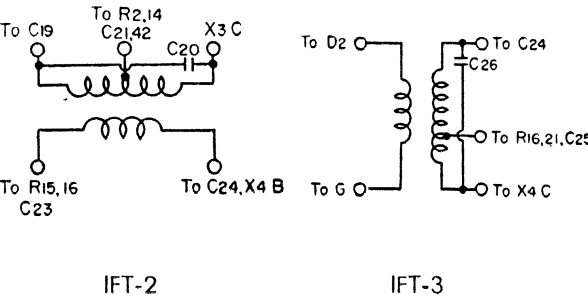
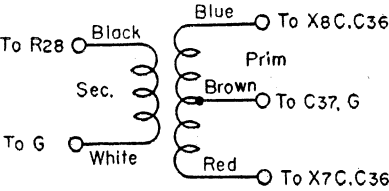
IFT



Driving Transformer (T1)



Output Transformer (T2)



	Impedance	DC Resistance
Primary	1.5 KΩ	145 Ω ± 20%
Secondary	2 KΩ	204 Ω ± 20%

	Impedance	DC Resistance
Primary	100 Ω	7 Ω ± 15%
Secondary	8 Ω	0.65 Ω ± 15%